

Comparison of the Performance of In-presence and Distance Learning Methods in Improving the Professional Knowledge of Health Workers

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Abstract

Background and Objectives: In continuous medical learning programs, selection of appropriate learning methods is important for streaming individuals by the learning process. The goal of this study is to compare in-presence learning method with distance learning method, and explore their effect on the professional knowledge of practical nurses.

Methods: In this descriptive study of case-control type, the researcher performs various learning programs in order to improve the professional knowledge of health workers and assesses this change during a comparison between the results of primary and secondary tests. One control group and three case groups were randomly selected from among the practical nurses. The comparison was made by Chi-square test, analysis of variance, and HSD test.

Findings: Participation in classes was found to be difficult for the nurses in half of the studied units (50%), and 40% of individuals tended to pass their courses (studying hygiene) by distance learning methods (self-teaching + communicating with professors).

Conclusions: Distance learning method would be more effective in improving the professional knowledge of health workers compared with in-presence learning method.

Keywords: Distance learning; In-presence learning; Education; Healthcare workers; Self-teaching

Background and Objectives

Among all various activities around the country, those in relation with health, safety, convenience, and generally with the social welfare of people have a great importance, among which health centers enjoy a specific place of attention. Cooperating with and being supervised by health bureaus, health centers are the pillars in performing health programs and also executing health networks in Iran.

In continuous medical learning programs, selection of appropriate learning methods, based on which the people will be streamed by the learning process, is one of the difficult tasks for the training

institutions or planners.

In 1991, Ashk-Torab investigated and compared the effects and methods of lecture learning and the use of instruction pamphlets to increase the knowledge of nurses about Hepatitis B in the Hemodialyze section of hospitals of Iranian Ministry of Health and Medical Education (MOHME). While learning through both methods had been effective in increasing the knowledge of nurses, no significant difference was identified between the used methods. In addition, no significant impact for age, gender, marital status, working background in Hemodialyze section, passing in-service courses, being instructed about Hepatitis B, and suffering background of the trainees or their relatives from Hepatitis was detected on the level of their knowledge after instructions.

Ghasemi compared the effects of "lecture" and "lecture and pamphlet" learning methods on the appearance of the symptoms of diseases in the teaching

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hospitals of Tehran, and no significant difference between the results of the two methods was identified.

In continuing of the previous studies, the aim of this study is to compare the performance of in-presence and distance learning methods on improving the professional knowledge of the health workers.

Methods

The statistical population of this descriptive study of case-control type includes 248 practical nurses working in 141 health centers in Amol city (North Iran). Through a primary test, those nurses who obtained a grade ranging from 15 to 20 were set in a same cluster. A random selection method was employed, and 151 individuals were selected in four groups accordingly as following:

- 1) In-presence Learning Group (no. 48);
- 2) Distance Learning Group, informed of secondary test performance (no. 35);
- 3) Distance Learning Group, not informed of secondary test performance (no. 34);
- 4) Control Group (no. 34).

The required data were collected using a researcher-made questionnaire. The questionnaires used in the primary stage were similar for all groups. In the demographic section, the questionnaire asked the participants about their age, working history, marital status and the number of children. The interests and opinions of nurses about health learning, preferred learning method, and personal learning were asked in another section. The last part of the questionnaire included 24 scientific questions to assess the knowledge of nurses about various health instructions. The questionnaire was validated using Content Validity method.

Results and Discussion

The main goal of this study was to compare the impact of in-presence and distance learning methods in improving the professional knowledge of practical nurses in the health centers of Amol city, Iran.

Among the total sample, 17.2% had less than 37 years old, 53.6% were 37 to 39 years old, and 29.1% were more than 39 years old. The average age of these people was 38.5 years. In this sample, 25.8% of the individuals had a work experience of less than 15 years, 56.3% 15 to 17 years, and 17.9% higher than 17. Of the total subjects, 89.4% were married and 10.6% were single.

The study subjects specified 3.9 ± 4.69 hours per week on average to study during the last 5 years. Discussion with experts inside the organizations had no effect on the scientific knowledge of nurses in the

health centers. 98.6% of the participants believed in the high importance of health learning courses in enhancing the scientific knowledge of nurses, and 54.3% intended to participate in the final examination.

While 62.3% of the sample had a positive attitude towards "self-teaching" and accepted this statement: "If teacher acts as a source to resolve problems, every individual can reach an appropriate level of knowledge by personal learning", 26.5% had a negative viewpoint, and 11.2% had no idea. Whereas 71.5% of the participants explained that they have re-studied their textbooks after graduation, 89.4% of them declared that they have tried to find and study new resources.

About half of the studied subjects (51.7%) had problems in taking classes, and 45.7% intended to pass learning courses (health learning courses) by distance learning methods (self-teaching + communication with professors).

As mentioned, although more than half of the study subjects intended to participate in the final exam, they had no tendency to participate in other courses. This observation can partly be attributed to human's competitive mentality; an individual will be granted by credits of a relearning course only if he or she participates in the final exam.

According to our results, learning through both methods is effective to improve the knowledge of nurses. This result is congruent with those obtained by Yaghoobi [] and Ashk-Torab [].

Lack of difference between the knowledge score of the control group in the primary and secondary tests indicates that no factor instead of learning through these two methods has been effective; therefore, the second hypothesis is accepted (learning is effective on the knowledge level of workers in the health centers of Amol city in various health fields).

In none of the test and control groups, the focused variables were effective on the level of changes in the knowledge of people. These variables include: working background, marital status, number of children, level of study, tendency to participate in the final exam or not, positive or negative viewpoint about self-learning, restudying the instruction pamphlets or not, finding and studying new resources, and existence or lack of any problem about participation in classes and desired learning program(s).

In regard to hypothesis 4, the results of variance analysis and HSD Tookie test showed is a statistically significant difference in the average scores of the secondary tests between the four groups of nurses (two by two and in all possible pairs). Therefore, based on the similarity and coordination of the aver-

age scores of the primary test of the study groups, it can be concluded that:

1- Distance learning method is more effective than in-presence learning method in increasing the level of knowledge of individuals, when the attendants are informed of the final exam. So, the fourth hypothesis of the study regarding the similarity of the effects of in-presence and distance learning methods is rejected.

2- In case that an individual attending to the distance learning courses is not informed about the final exam, the obtained post-test scores are significantly lower than those of the distance and in-presence learning groups. Such a difference can be attributed to the knowledge of individuals about the final exam.

3- Although in the secondary test, all of the learning groups had significantly higher average scores in comparison with the control group, difference between the distance learning groups and the control group is marginal. Hence, the fourth hypothesis of the study with respect to the similarity of the level of knowledge of individuals about health learning subjects is accepted during the primary tests for the distance learning and control groups; however, the second part of this hypothesis with respect to the similarity of the individuals' knowledge during the secondary tests and after passing the learning courses is rejected.

Comparison of the different methods of distance learning, therefore, yields the following results:

1- Among the three methods used for self-learning, namely ordinary writing, planned learning and illustration, only the first two methods significantly improved the scores of the distance learning group relative to the in-presence learning group. However, as mentioned previously, the members of distance learning group had gained significantly higher scores in correctly replying the questions of the first section (simple ordinary writing) as compared to the members of in-presence group. Therefore, in such a comparison, only the priority of planned learning method over the other two methods is emphasized.

2- Among these three methods, only planned learning method significantly improved the scores of the members in distance learning group as compared to the members of control group.

According to the study results, 78.3% of the individuals in both groups have acknowledged the learning courses on health learning to be highly useful. It may be added that while 43.8% of the individuals in the in-presence group mentioned that the current teaching method (lecturing) is an interesting method, 89.6% of them believed a totally good capability for their teacher (researcher) and 10.4% believed an average capability; hence, one could conclude that most members

of the in-presence learning group were satisfied.

Also 77.1% of the individuals in the two groups stated that the study subjects were highly new. 57.8% of them assessed an average and ordinary level for the difficulty or simplicity of subjects. The X2 test results showed no difference between the perception of the two groups, but a significant difference ($P < 0.05$) was observed between the members of the two groups in assessment of "self-learning". Most of the members in the in-presence group had a positive assessment of their level of knowledge; while such a positive assessment was only true for 68.8% of the members in the distance learning group (the latter group had obtained better scores in the post-tests). As this period was the first self-learning experience for 100% of the members of distance learning group, inadequate self-confidence and inability of some individuals in proper evaluation of the possible changes were the possible reasons for such a problem.

The observation that the level of self-study among the members of distance learning group was significantly higher than that in the members who decided to take part in the classes, is not surprising. Both groups had a high tendency to use practically their learnt materials. A high percentage of members in both groups believed that in-presence learning method was more successful than distance learning method. Although such a statement was expected from the members of in-presence group, it was not expectable from the members of other groups. This observation may be attributed to the lack of knowledge of the individuals about personal capabilities and independent learning methods. Our results also showed that all members of the two groups tended to participate in complementary courses after completion of regular courses, and only two members in the in-presence group reflected not such tendency. In this connection, 65.1% of the members have suggested compound method (self-learning + participation in classes) for complementary courses. In addition, 94% of the studied subjects in both groups highly believed that experts and resources could remove scientific ambiguities. In total, comparison between the in-presence and distance learning methods gives the following results:

1) The two methods are equal satisfying attendants, and motivating individuals to apply learnt materials in practice.

2) The learning process becomes more effective when the members of distance learning are informed about the final exam.

3) Distance learning method is applicable for a large group of people with low expenses without a need for specifying a physical location.

Hence, preference and superiority of distance

learning method as compared to in-presence learning method are concluded in this study. The results of this study are congruent with those of the research by Yaghoobi and Ashk-Torab.

We also compared various distance learning methods in this study. According to the majority of members (60%), the subjects of third section (various health learning methods) are the most attractive and suitable subjects. Based on this observation, more attractive subjects should be included in the training programs of this group, assisting them in performing tasks. While about half of the individuals had a positive perception with regard to the writing style and presentation of subjects in the third section (illustration), about 40% of the individuals preferred presentation style of the second section (program learning), and the ordinary writing style was not appreciated too much. These results are in agreement with the findings of Yaghoobi and Ashk-Torab.

So, planned learning method is defined as the preferred method in the current study among the various distance learning methods; however, overall it is emphasized that selection of a learning method should be according to numerous subjects such as learning topic, feasibilities, situation of learners, etc.

Conclusions

The aim of this study was to compare the performance of in-presence and distance learning methods in increasing the professional knowledge of the health workers. Based on our results: 1) the performance of the two methods is equal in satisfying attendants and motivating them to apply learnt materials in practice; 2) the learning process becomes more effective when the members of distance learning are informed about the final exam; and 3) the distance learning method is applicable for a large group of people with a low expenses without a need for specifying a physical location. In general, the results provide evidence for the notion that distance learning method is more effective in improving the professional knowledge of health workers compared with in-presence learning method.

Competing Interests

The authors declare no competing interests.

Authors' Contributions

Both authors has equal contributions to the conception and design of the study, designing and performing the training courses, analysis and interpretation of the results, and drafting and revising the manuscript. Both authors read and approved the final manuscript.

References

1. Stinger R. *Ways to encourage to study*: The Board of trustees of public libraries of Iran; 1991.
2. Abtahi S. *Training and Recovering Human Resources*. Tehran: The Institute of Learning Study and Programming, Organization of Development and Renovation of Industries of Iran; 1989.
3. Malcolm. *Distance Learning: Message of UNESCO* 1990.
4. Bernard L. *Memorization and Learning; Modern Methods in Adult Learning*. 2ed edition. Tehran: Ghoghnoos 1989.
5. Relearning program of health of family for health teachers in schools. Tehran: Learning and Researching Complex of Ministry of Health, Treatment and Medical Education 1983.
6. Behdad Z. *Health of schools*. Tehran 1987.
7. Petrofski Aea. *Learning for living*. Tehran: Amir-Kabir 1975.
8. *Proposals of continuous medical learning seminar about continuous learning strategy. Volume 2: Continuous Medical Learning*.
9. Therhald A. Teaching and learning of adults in Federal Republic of Germany. *Monthly of International Organization of Learning Methods for Adults* 2010, 10.
10. Sazmand A. A consideration of activities of health teachers in schools of Tehran. 1977.
11. Principles and programs of relearning period of health and diseases of eye. Tehran 1981.
12. Principles and programs of public relearning programs for health teachers of schools. Tehran 1983.
13. Karimi I. Programs and structure of health organization in schools. *Med & Treat* 1985, 23.
14. Tunzusyvia TK, Robinson K. *Health learning: Its efficiency and effects*. Tehran: Bashari 2010.
15. Craters G, Translated by Dr. Abolhassan Khavarpour, . *Effective mental factors in learning of adults*. Tehran: International Organization of Learning Methods for Adults; 2010.
16. Gilbert G. *A Learning Directory to Train Health Agents*. Tehran: Center of University 1985.
17. Sing R. Adult Learning as a Training Process. *International Organization of Learning Methods for Adults* 2010, 8.
18. Tures D. Continuous learning in Cuba. *Continuous Learning in Medicine* 1990, 1.
19. Raof A. *Teacher training and internship*. Tehran: Fatemi 2010.
20. Moshtaghi M. Methods and comparative strategy in continuous learning of adults. *International Organization of Learning Methods for Adults* 2010.
21. Mohseni M. Relearning, from theory to practice. *Continuous Learning in Medicine* 2010, 8.
22. General principles to perform relearning programs in medicine society of country. *Continu Learn Medic* 1991, 2(3):86-88.
23. Shabani H. *Learning and training Skills: teaching methods and Skills*. Tehran: SAMT 2010.

24. Jamshidbeigi E. Workshop of teaching methods. *Continu Learn Medic* 1993, 3(9).
25. *Distance learning*. Tehran Alzahra University; 1991.
26. Etemadian M. Public health. *National University of Iran* 1978: 74.
27. Majlesi F. *Health in schools*. Tehran: Chehr 1978.
28. Harbens B. Adult learning and personal innovation. *Organization of Learning Methods for Adults* 2010.

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